AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

- 1.-3. (Cancelled)
- 4. (Currently Amended) A microchip, comprising:
- a first flow pass in which a specimen flows;
- a second flow pass in which a reagent flows;

a confluence area in which the specimen and the reagent flowing from the first and the second flow passes join and make a liquid mixture, the confluence area being located downstream from the first and the second flow passes;

a third flow pass in which the liquid mixture flows and light from a reaction of the liquid mixture is generated, the third flow pass being connected to the confluence area and being located downstream from the confluence area and on a different level from the first and the second flow passes; and

a discharge port which is located downstream from the third flow pass and is connected to the third flow pass;

wherein the light generated in the third flow pass goes through the third flow pass in an extension direction of the third flow pass and exits to a light detection area a flow pass for containing a reaction, said flow pass having a confluence area and a ventilator port; and

a detection target region, located within at least a portion of said flow pass, having an end located proximate said confluence area and a second end located proximate said ventilator port, wherein light from said reaction is generated, said light passing through said detection target region to a light detection area;

wherein said detection target region is larger than said light detection area.

- 5. (Original) A microchip in accordance with Claim 4, wherein said light is generated in response to excitation light from a light source.
 - 6. (Currently Amended) A microchip, comprising:
 - a first flow pass in which a specimen flows;
 - a second flow pass in which a reagent flows;

a confluence area in which the specimen and the reagent flowing from the first and the second flow passes join and make a liquid mixture, the confluence area being located downstream from the first and the second flow passes;

a third flow pass in which the liquid mixture flows and light from a reaction of the liquid mixture is generated, the third flow pass being connected to the confluence area and being located downstream from the confluence area; and

a discharge port which is located downstream from the third flow pass and is connected to the third flow pass;

wherein the light generated in the third flow pass goes through the third flow pass in an extension direction of the third flow pass and exits to a light detection area a flow pass for containing a reaction, said flow pass having a confluence area and a ventilator port:

a detection target region wherein light from said reaction is to be generated, said detection target region being located within at least a portion of said flow pass, having an end located proximate said confluence area and a second end located proximate said ventilator port; and

an optical path for detecting said reaction, said optical path oriented in an extension direction of said flow pass and passing from said confluence area to said ventilator port.

7. (Original) A microchip in accordance with Claim 6, wherein said light is generated in response to excitation light from a light source.

- 8. (Currently Amended) A microchip in accordance with Claim 6, wherein a length of said third flow pass detection target region is greater than a depth and a width of said third flow pass.
- 9. (Currently Amended) A microchip in accordance with Claim 6 further comprising:

a plurality of supply inlets for supplying a plurality of fluids, the plurality of supply inlets being respectively connected to the first and the second flow passes; and

a plurality of branch flow passes, respectively connecting said plurality of supply units to said flow pass.

- 10. (Currently Amended) A microchip in accordance with Claim 9 further comprising a plurality of micro pumps respectively disposed in said <u>first and second</u> plurality of branch flow passes for pumping said fluids into said <u>third</u> flow pass.
- 11. (Currently Amended) A microchip in accordance with Claim 9 further comprising an area in said <u>third</u> flow pass for anchoring a solid specimen.
- 12. (Currently Amended) A microchip in accordance with Claim 6 further comprising a reagent fixing unit located in said <u>third</u> flow pass.
- 13. (Currently Amended) A microchip in accordance with Claim 6, wherein said optical path comprises further comprising a light guide unit, disposed adjacent to an end of said third flow pass detection target region, wherein the light exiting from the third flow pass goes into for conducting said light between said detection target region and a the light detection area through the light guide unit.
- 14. (Original) A microchip in accordance with Claim 13, wherein said light guide unit comprises an optical fiber.

- 15. (Currently Amended) A microchip in accordance with Claim 13, wherein said optical path further comprising comprises a second light guide unit connected to a second end of said third flow pass detection target region.
- 16. (Original) A microchip in accordance with Claim 13, wherein said light guide unit comprises an optical waveguide.
 - 17. (Currently Amended) A microchip, comprising:
 - a first flow pass in which a specimen flows;
 - a second flow pass in which a reagent flows;

a confluence area in which the specimen and the reagent flowing from the first and the second flow passes join and make a liquid mixture, the confluence area being located downstream from the first and the second flow passes;

a third flow pass in which the liquid mixture flows and light from a reaction of the liquid mixture is generated, the third flow pass being connected to the confluence area and being located downstream from the confluence area;

a reflection surface which reflects the light from the reaction, the reflection surface being formed on at least a portion of a surface of the third flow pass; and

a discharge port which is located downstream from the third flow pass and is connected to the third flow pass;

wherein the light generated in the third flow pass goes through the third flow pass in an extension direction of the third flow pas and exits to a light detection area a flow pass for containing a reaction, said flow pass having a confluence area and a ventilator port;

a detection target region wherein light from said reaction is to be generated, said detection target region being located within at least a portion of said flow pass, having an end located proximate said confluence area, and a second end located proximate said ventilator port;

a reflective surface formed on at least a portion of a surface of said detection target region; and

an optical path for detecting said reaction, said optical path passing from said confluence area to said ventilator port;

wherein said reflective surface is adapted to reflect said light so as to increase a length of said optical path beyond a length of said detection target region.

- 18. (Original) A microchip in accordance with Claim 17, wherein said light is generated in response to excitation light from a light source.
 - 19. (Cancelled)
- 20. (Currently Amended) A microchip in accordance with Claim 17, wherein said reflective surface is formed on a top surface and a bottom surface of said detection target region of said third flow pass.
- 21. (Original) A microchip in accordance with Claim 17, wherein said reflective surface comprises a metallic film.
- 22. (Currently Amended) A microchip in accordance with Claim 17, further comprising a lens disposed adjacent to an end of said detection target region of said third flow pass.
- 23. (Currently Amended) A microchip in accordance with Claim 22, wherein said lens is adapted to condense said light as said light exits said detection target region of said third flow pass and to direct said light to a the light detection area.
- 24. (Currently Amended) A microchip in accordance with Claim 17 further comprising:

a plurality of supply inlets for supplying a plurality of fluids, the plurality of supply inlets being respectively connected to the first and the second flow passes; and

a plurality of branch flow passes, respectively connecting said plurality of supply units to said flow pass.

- 25. (Currently Amended) A microchip in accordance with Claim 24 further comprising a plurality of micro pumps respectively disposed in said <u>first and second</u> plurality of branch flow passes for pumping said fluids into said <u>third</u> flow pass.
- 26. (Currently Amended) A microchip in accordance with Claim 24 further comprising an area in said <u>third</u> flow pass for anchoring a solid specimen.
- 27. (Currently Amended) A microchip in accordance with Claim 17 further comprising a reagent fixing unit located in said <u>third</u> flow pass.
 - 28. (Withdrawn) A microchip, comprising:

a substrate;

a flow pass for containing a reaction, said flow pass formed on a first side of said substrate;

a detection target region wherein light from said reaction is to be generated, said detection target region being located within at least a portion of said flow pass;

a condensing lens unit for condensing said light, said condensing lens unit formed on a second side of said substrate.

- 29. (Withdrawn) A microchip in accordance with Claim 28, wherein said light is generated in response to excitation light from a light source.
- 30. (Withdrawn) A microchip in accordance with Claim 28, wherein said condensing lens unit comprises a convex lens.
- 31. (Withdrawn) A microchip in accordance with Claim 28, wherein said condensing lens unit possesses optical power in a direction perpendicular to an extension direction of said flow pass.
- 32. (Withdrawn) A microchip in accordance with Claim 28, wherein said condensing lens unit has a curvature in an extension direction of said flow pass.

- 33. (Withdrawn) A microchip in accordance with Claim 28, wherein said condensing lens unit has a curvature in a cross-flow direction of said flow pass.
- 34. (Withdrawn) A microchip in accordance with Claim 28 further comprising: a plurality of supply inlets for supplying a plurality of fluids; and a plurality of branch flow passes, respectively connecting said plurality of supply units to said flow pass.
- 35. (Withdrawn) A microchip in accordance with Claim 34 further comprising a plurality of micro pumps respectively disposed in said plurality of branch flow passes for pumping said fluids into said flow pass.
- 36. (Withdrawn) A microchip in accordance with Claim 34 further comprising an area in said flow pass for anchoring a solid specimen.
- 37. (Withdrawn) A microchip in accordance with Claim 34 further comprising a reagent fixing unit located in said flow pass.
- 38. (Withdrawn) A method of manufacturing a microchip, comprising the steps of:

providing a substrate;

forming a core area of an optical waveguide on said substrate;

placing a film on said core area to form a clad area;

patterning a portion of said core area and said clad area to form an portion of a flow pass therein; and

placing a cover over said substrate.

39. (Withdrawn) A method in accordance with Claim 38, wherein said step of forming said core area comprises a SiO2 patterning process.

- 40. (Withdrawn) A method in accordance with Claim 38, wherein step of patterning comprises an anisotropic dry etching process.
- 41. (Withdrawn) A method of manufacturing a microchip, comprising the steps of:

providing a substrate;

forming a reflective film on said substrate;

forming a protective film on said reflective film on said substrate;

providing a cover;

forming a reflective film on said cover;

forming a protective film on said reflective film on said cover; and placing said cover over said substrate.

- 42. (Withdrawn) A method in accordance with Claim 41, wherein said reflective film comprises a metallic material.
- 43. (Withdrawn) A method of manufacturing a microchip, comprising the steps of:

providing a substrate;

forming a condensing lens on one side of said substrate; forming a flow pass on a second side of said substrate; and placing a cover over said substrate proximate said flow pass.

- 44. (Withdrawn) A method in accordance with Claim 43, wherein said condensing lens has a curvature in an extension direction of said flow pass.
- 45. (Withdrawn) A method in accordance with Claim 43, wherein said condensing lens has a curvature in a direction perpendicular to an extension of said flow pass.
 - 46.-49. (Cancelled)

- 50. (Previously Presented) A microchip in accordance with Claim 17, wherein light from a light source enters the microchip through a top surface of said microchip and exits from the microchip through a lens disposed on the top surface of the microchip.
- 51. (Currently Amended) A microchip in accordance with Claim 50, wherein said third flow pass has top and bottom flat surfaces in said detection target region, said reflective surface being formed on said top and bottom flat surfaces.